

Office Action Summary

Application No.

10/538,169

Applicant(s)

SASAKI ET AL.

Examiner

Bruce F. Bell

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12, 14-21, 23, 24 and 26-36 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 10, 12, 14-21, 23, 24, 26, 27, 29, 31, 35 and 36 is/are allowed.
- 6) ☒ Claim(s) 11, 30 and 32-34 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-848)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 12/2/05
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 34 is vague and indefinite with respect to what the structure of the electrode catalyst is that makes it suitable for an oxygen reduction reaction at a cathode since it is the catalyst that is being instantly claimed. Further the oxygen reduction reaction is related to the process of using the electrode catalyst which is not being instantly claimed. Therefore, it is unclear as to what components are in the electrode catalyst that make such catalyst suitable for oxygen reduction reaction.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11, 30, 32-34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nara et al (6312571) in combination with Fung et al (4136213).

Nara et al disclose an activated cathode comprising an electrically conductive substrate, an interlayer comprising a nickel oxide formed on the surface of the electrically conductive substrate, and a catalyst layer containing at least one lanthanum

component selected from an oxide or hydroxide of lanthanum metals and at least one platinum component selected from platinum metals and silver and oxides and hydroxides thereof form on the interlayer. The activated cathode of the invention has good adhesivity and prolonged life which allows for stable electrolysis of brine. See col. 1, lines 5-8. The electrically conductive substrate is made of stainless steel, titanium, nickel and carbon materials. See col. 3, lines 25-26. The mixing ratio of the platinum metal to lanthanum metal is 40:60 to 80:20 by mol %. See col. 4, lines 60-61.

Nara et al does not disclose that the conductive carrier or substrate comprises carbon powder.

Fung et al disclose that the use of carbon as a catalyst support for numerous chemical and electrochemical reactions is known. The advantages of such powdered carbon as a catalyst support is the large contact area provided by the highly irregular surface of the carbon particles. The catalyst efficiency of an electrode is directly related to surface contact area of the electrocatalyst and consequently, compacted porous carbon has been found to be used as an electrocatalyst support. In electrode structures, activated catalyst metal is deposited on the surface of the compacted carbon. See col. 1, lines 16-26.

The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the instant invention was made because even though the prior art of Nara et al only discloses the use of a carbon substrate rather than a carbon powder carrier, it would have been within the ability of the person having ordinary skill in the art to use carbon powder since it is considered conventional in the art to do so to improve

the catalytic efficiency of an electrode due to the increased surface area of the catalyst so that improved reaction can take place due to this increased surface contact area of the catalyst as is shown in the Fung et al patent. Therefore, the prior art of Nara et al in combination with Fung et al renders the applicants instant claims as obvious for the reasons set forth above.

Allowable Subject Matter

5. Claims 1-8, 10, 12, 14-21, 23, 24, 26-29, 31, 35, and 36 are allowable over the prior art of record.
6. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest an electrode catalyst as set forth in claim 1 having an alkaline earth metal in combination with the particular rare earth oxide in the catalyst mixture. The prior art of record further fails to teach a process for preparing a GDE by laminating a reaction layer of an electrocatalyst having a mixture of a particulate noble metal and at least one particular rare earth oxide on a conductive carrier. Lamination of an electrocatalyst containing a mixture of a particulate noble metal and at least one particular rare earth oxide is not taught and/or suggested. Even though lamination of an electrocatalyst is known, it is not known to perform such lamination on an electrocatalyst containing the above composition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BFB
December 2, 2008

/Bruce F. Bell/
Primary Examiner, Art Unit 1795